

Information Technology Bulletin

Number: IT-01-03

Title: Data Quality and Integrity

Effective: February 1, 2001

Expires: Until Revised or Rescinded

1. Introduction

This policy bulletin establishes the activities, authority, and responsibilities for data quality, standards, and integrity for all information systems of the Bureau of Indian Affairs.

2. Purpose

This bulletin promotes the integrity and accountability of data requirements, specifications and standards throughout the life cycle of a system of data.

3. Background

The Paperwork Reduction Act (PRA) of 1980, as amended by the Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35); the Privacy Act, as amended (5 U.S.C. 552a); the Chief Financial Officers Act (31 U.S.C. 3512 et seq.); the Federal Property and Administrative Services Act, as amended (40 U.S.C. 759 and 487); the Computer Security Act (40 U.S.C. 759 note); the Budget and Accounting Act, as amended (31 U.S.C. Chapter 11); Executive Order No. 12046 of March 27, 1978; and Executive Order No. 12472 of April 3, 1984.

4. Scope

Currently approved versions of sources of authority and reference documents are to be applied to the implementation of this directive and associated processes and procedures.

5. Definition

4.1 Office of Management and Budget Circular A-130 November 2000

4.2 This directive may be implemented with procedures, manuals and other documentation, necessary for the proper management of enterprise and trust data.

6. Policy

To promote the integrity and accountability of data requirements, specifications and standards, throughout the life cycle of a system of data, the following principles and characteristics of data quality are recognized and adopted. The roles that require and form the context of the data quality and standards are also recognized as follows:

Data Principle or Characteristic	Statement of Principle or Characteristic
<p>Data Accuracy</p>	<p><i>Policy Principle:</i> All data must be accurate, and must be susceptible to validation.</p> <p><i>Data Collection:</i> The collectors of the data must know the business context and rules for the data acquisition within the business activity to insure accurate data collection.</p> <p><i>Data Validation and Storage:</i> The data collected must be validated consistent with existing accurate data or data standards, and stored within the data repository without alteration.</p> <p><i>Business Use and Analysis:</i> The accurate analysis and use of the data must be insured by the use of correct algorithms, formulas, translations, descriptions, and codes.</p>
<p>Data Availability and Accessibility</p>	<p><i>Policy Principle:</i> Data must be accessible and available, if needed or required for a business purpose.</p> <p><i>Data Collection:</i> If there is a business purpose or requirement for data, then it must be collected and made available to a business activity in a manner that insures its secure accessibility.</p> <p><i>Data Validation and Storage:</i> The availability of data will be governed by the business need for the data. The access to data will be determined by the need to use the data in a bona fide business activity for a valid business purpose.</p> <p><i>Business Use and Analysis:</i> The need of the business activity to use, analyze and apply the data will determine its availability and accessibility.</p>

Data Principal or Characteristic	Statement of Principle or Characteristic
<p>Data Consistency and Reliability</p>	<p><i>Policy Principle:</i> The value of the data must be reliable and consistent across all applications and uses of the data.</p> <p><i>Data Collection:</i> The data collected must be a reliable documented description or quantification of the business item or event it represents, and it must be consistently transcribed and encoded for all data systems.</p> <p><i>Data Validation and Storage:</i> The data must be validated with existing data edits and/or standards to insure reliability, and be stored consistently across all data stores.</p> <p><i>Business Use and Analysis:</i> Use standard algorithms, calculations, formulas and equations to analyze data under reproducible circumstances to insure the consistency and reliability of data in the same business uses and activities.</p>
<p>Data Completeness and Comprehensiveness</p>	<p><i>Policy Principle:</i> All required items of data are included in the entire scope of a specified data set, and any intentional exclusion of data must be documented.</p> <p><i>Data Collection:</i> The collection of all required data can be achieved through original data acquisition and through the specified access via interface to existing data within a foreign data store that constitutes part of the required data set.</p> <p><i>Data Validation and Storage:</i> The total data requirements and specifications of the data owners, users, and managers, must be validated and insured through data inventory, dictionary, and table documentation, and any changes over time must be included in such documentation.</p> <p><i>Business Use and Analysis:</i> Data edits and data field/table validations must be used to insure that all required data exists and is complete for use by a business activity.</p>

Data Principle or Characteristic	Statement of Principle or Characteristic
<p>Data Currency</p>	<p><i>Policy Principle:</i> Stored data must be up-to-date and not superceded by data from subsequent business events or transactions, and if time sensitive data, not made invalid by the passage of a set period of time.</p> <p><i>Data Collection:</i> To insure the current status of data, data collection should be continuous which requires the data collector to be constantly aware of the occurrence and progress of business events.</p> <p><i>Data Validation and Storage:</i> If definitions of business events or transactions change or are modified over time, then the corresponding data definitions, formats, tables and documentation must also change in synchronization with the changes in business.</p> <p><i>Business Use and Analysis:</i> The maintenance of current or up-to-date data is critical to the business and analysis activities that rely on the data to accomplish their business purpose. The business activities responsible for acquiring or modifying the data are also responsible for maintaining the currency of the data.</p>
<p>Data Definition and Uniqueness</p>	<p><i>Policy Principle:</i> All data required by a business activity must be unique and clearly defined so that all activities, systems and users that require access to or rely upon the data will know what the data means, including its business definition, use, context and the valid range of values which define the data.</p> <p><i>Data Collection:</i> The data collector must have access to and be knowledgeable of the data definitions, characteristics and value ranges, to insure the quality of the data consistent with the requirements of the business activity.</p> <p><i>Data Validation and Storage:</i> The data store must consistently apply the correct data definition in the form of the data validation of the data being acquired within the business</p>

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	<p>activity. Each field of data must be unique and each data element should not employ any form of “intelligent keys”.</p> <p><i>Business use and Analysis:</i> Appropriate analysis and application of the data must be consistent with the original use and context of the data collected.</p>
Data Granularity	<p><i>Policy Principle:</i> The data collected for a business activity must be at the correct level of detail for the use of the data within business activity and those activities that rely on the data.</p> <p><i>Data Collection:</i> Data collection must acquire the data at the proper level of detail of the business activity, process or function.</p> <p><i>Data Validation and Storage:</i> Data storage must be consistent with level of granularity of the business activity.</p> <p><i>Business Use and Analysis:</i> The business level of detail is consistent with data required for its representation or description.</p>
Data Relevancy	<p><i>Policy Principle:</i> The data acquired must be meaningful to the business activity and promote the usefulness business of the activity.</p> <p><i>Data Collection:</i> The data collector, using the data definitions and business rules of the activity, establishes the relevance of data within the business activity.</p> <p><i>Data Validation and Storage:</i> The data must be stored in a manner that is consistent with data retention schedules to insure data availability.</p> <p><i>Business Use and Analysis:</i> The business of the activity establishes the relevance of the data and the data must be meaningful to the activity.</p>

Data Principle or Characteristic	Statement of Principle or characteristic
<p>Data Precision</p>	<p><i>Policy Principle:</i> The data values must be at the correct level of precision required by the business activity to meet the business purpose and define the business event.</p> <p><i>Data Collection:</i> The data collector must acquire data within acceptable values or range of values at the correct level of precision.</p> <p><i>Data Validation and Storage:</i> The data formats for stored data must use the correct level of precision.</p> <p><i>Business Use and Analysis:</i> The business activity states or defines the level of precision necessary or used for that activity or event.</p>
<p>Data Redundancy</p>	<p><i>Policy Principle:</i> Data should be acquired and stored only one time and in one data store, if possible.</p> <p><i>Data Collection:</i> The data must be designated and documented as stored in a single database, table, or warehouse. The data collector should know and have access to the single data store.</p> <p><i>Data Validation and Storage:</i> Data should be validated and documented as existing within a single data store or the limited number of databases when data must be stored in more than one database, table, or system.</p> <p><i>Business Use and Analysis:</i> Data that exists in more than one location can cause and result in different values in different database or table if not actively synchronized. Redundant data can be used to increase system performance but the data must be synchronized.</p>

Data Principle or Characteristic	Statement of Principle or Characteristic
Data Timeliness	<p><i>Policy Principle:</i> The business needs and requirements of the business activity, and the duration or frequency of the business event determine data timeliness.</p> <p><i>Data Collection:</i> The timeliness of the data collection can be effected by the method or mechanism used to collect the data, and the timeliness of the originating business activity.</p> <p><i>Data Validation and Storage:</i> Data must be available from the data store when requested by the user or system.</p> <p><i>Business Use and Analysis:</i> Timely data prevents errors and other adverse impacts to a business activity or entity, be allowing a timely response.</p>

7. Responsibilities

- 1.1 The Office of the Assistant Secretary – Indian Affairs, Office of the Chief Information Officer, is responsible for this policy directive
- 1.2 Implementation of this policy is the responsibility of the Bureau of Indian Affairs (BIA), Office of Information Resource Management, and the programs, program offices, and program and administrative management, supporting or using the data subject to this directive.
- 1.3 Accountability: The person or persons responsible for the creation, entry, modification, and/or deletion of data are accountable for the true and accurate entry or recording of the data from the data source into the data system.
- 1.4 Criminal and Civil Liability: Any person or persons, who misuse or misrepresent data, or otherwise violate the provisions of 18 U.S.C. §1030 concerning fraud and related activity in connection with computers and stored data or information, or violate any other applicable Federal law or regulation, will be subject to civil and criminal liability.

8. Approvals

There shall be no waivers or deviations from this directive without the written approval of the Chief Information Officer – Indian Affairs.

